

9. NOTES ON THE GENERA AND SPECIES OF CYPSELIDÆ. BY
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SOCIETY.

(Plates XXXIII., XXXIV.)

In offering to the Society some notes on the *Cypselidæ*, which have been put together during the time that I have devoted to this group with the object of working out the American species, I may begin by stating that my views as to the correct position of this family in the Natural System coincide with those of L'Herminier*, Nitzsch, and Burmeister. There can be no doubt, I think, if osteological and pterylographical characters are to have any weight in our classification, that we must place the three families *Trochilidæ*, *Cypselidæ*, and *Caprimulgidæ* next to one another. It need scarcely be added, therefore, that I consider that the Swifts have no relationship whatever with the Swallows (*Hirundinidæ*), with which, in spite of the frequent protests of scientific ornithologists, they are confounded even to the present day by certain systematists who attend only to the most superficial external characters.

Without going into the general anatomy and osteology of the Swifts, which offer so many peculiarities, I may say a few words concerning two points—the form of the sternum, and the number of the phalanges of the toes—concerning which I have some new facts to communicate.

The general form of the sternum in the genus *Cypselus* has been well described by M. E. Blanchard in his admirable article upon the osteological characters of the sternum of birds in the 'Annales des Sciences Naturelles'†. As a typical form of the group, M. Blanchard describes and figures the sternum of the Common Swift (*Cypselus apus*). We cannot do better than follow his description of the more noticeable points in the structure of this organ, which is represented in the accompanying woodcuts (figs. 1 & 2).

The body of the sternum of *Cypselus apus* is much produced, and gradually widened towards its posterior extremity, the lateral margins curving gradually outwards, and meeting the posterior margin nearly at right angles. The posterior margin (see fig. 1) is convex, forming a segment of a circle; it is continuous throughout, and presents no traces of posterior fissures. The keel (see fig. 2) springs at once from the posterior margin, and rises high and rapidly, attaining an enormous development. It projects far in front over the anterior margin of the body of the sternum, and terminates in a rounded point, descending thence to the anterior margin of the body in a concave curve. There is scarcely a trace of the manubrial process

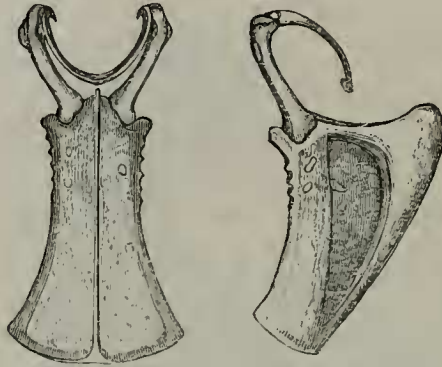
* As long ago as the year 1827, in his 'Recherches sur l'appareil sternal des oiseaux,' M. l'Herminier well described the sternal apparatus of the Swifts, and constituted them the seventh family of his "Normal Birds," placing them between the Colibris (*Trochilus*) and the Engoulevents (*Caprimulgus*).

† Recherches sur les caractères ostéologiques des Oiseaux, &c. (Ann. d. Sc. Nat. ser. 4, Zool. vol. xi. p. 11).

which is so well developed in all the true Passeres. The two rami of the *furcula* are completely joined at its apex, which is situated at some distance from the anterior margin of the keel, and at about half the height of the keel from its base.

Fig. 1.

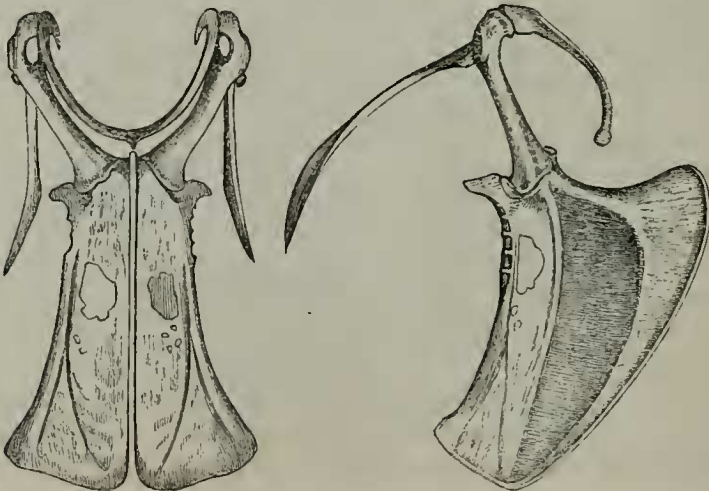
Fig. 2.

Figs. 1 and 2. Sternum of *Cypselus apus*.

Such are some of the more noticeable points in the formation of the sternum of *Cypselus*. They have been so frequently described that I should not have alluded to them unless I had wished to call attention to the fact that all the other genera of the same family present a nearly similar form of sternum. In *Chætura* (figs. 3 & 4)

Fig. 3.

Fig. 4.

Figs. 3 and 4. Sternum of *Chætura zonaris*.

the general characters are nearly the same, although the whole sternum is broader in proportion and less elongated, and the anterior point or apex of the keel is not carried so far forward. The body of the sternum is also incompletely ossified, presenting traces of two

large irregular medial foramina, one on each side. The same foramina are present in some of the weaker forms of *Cypselus*, as already noticed by Mr. Gosse* in the case of his *Tachornis phœnicobia*.

Collocalia† presents us with a sternum (figs. 5 & 6), which may be described as a miniature of that of *Chætura*. Besides the irregular

Fig. 5.



Fig. 6.

Figs. 5 and 6. Sternum of *Collocalia francica*.

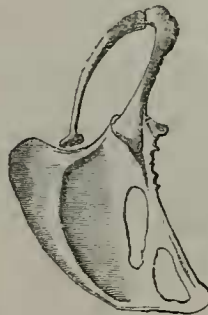
lateral foramina in the face of the sternum noticed in the latter genus, there are likewise two small openings perforating the lower part of the carina, as is mentioned by Gosse in the case of his *Tachornis* (*l. c.*). These are not shown in the figure.

Dendrochelidon, as already remarked by M. Blanchard, is, as regards its sternum, somewhat divergent from the typical form of

Fig. 7.



Fig. 8.

Figs. 7 and 8. Sternum of *Dendrochelidon wallacii*.

Cypselus. The whole sternal apparatus is much broader in proportion. The posterior margin of the sternal plate is slightly concave instead of being convex. The two medial foramina are large and well-defined, and two posterior foramina are likewise present, although the posterior margin of the sternal plate is entire and strongly ossified. The general character of the sternum, however, is strongly Cypseloid, and, putting aside the other points of its structure, leaves

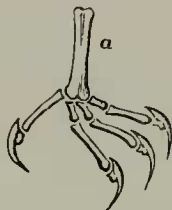
* Birds of Jamaica, p. 59.

† Of the Osteology of *Collocalia* Dr. Bernstein has written a very complete account in the twenty-sixth volume of the 'Acta Academiæ Leopoldino-Carolinæ' (p. 15). Dr. Bernstein gives figures of the breast-bones of the two Javan species (*C. esculenta* and *C. nidifica*), and shows conclusively that this genus is in every point of view truly Cypseloid and is most nearly allied to *Dendrochelidon*.

no doubt whatever as to the true position of this interesting form. The figure represents the sternum of *D. wallacii*. That of *D. mystacea*, of which also Mr. Wallace has kindly lent me a specimen, is nearly similar, but larger, and with the medial foramina still broader and more regularly oblong.

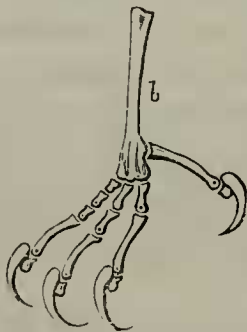
The abnormality of the number of phalanges in the digits of *Cypselus* is well known. The medial and external digits have only three phalanges like the inner digit, as was first pointed out by Nitzsch* in 1811. This is the case, I believe, with all the species of *Cypselus* and *Panyptila*. Professor Baird, in his 'North-American Birds,' apparently misled by Streubel†, believes that in *Panyptila* the normal number of phalanges is present. But, as will be seen by the accompanying drawing (fig. 9), the same rule prevails in *Panyptila* as in *Cypselus*. The medial and outer digits have only

Fig. 9.

Fig. 9. Left foot of *Panyptila melanoleuca*.

three phalanges each like the inner. In all the other genera of *Cypselidæ*, as far as I have been able to ascertain, the normal rule is followed, the medial digit having four phalanges and the outer digit five. As an illustration of this form of Cypseloid foot I give a figure (fig. 10) of the bones of the foot of *Chætura zonaris*, with the phalanges slightly separated as in the corresponding figure of *Panyptila melanoleuca*.

Fig. 10.

Fig. 10. Right foot of *Chætura zonaris*.

* Osteogr. Beiträge z. Nat. d. Vögel, p. 104.

† See Streubel's remarks in the 'Isis,' 1848, pp. 359, 360.

This very remarkable peculiarity in the foot of the typical *Cypselidæ*, together with the abnormal position of the hallex or posterior digit, which is either placed anteriorly in a line with the other digits or more or less laterally, serves to divide the family *Cypselidæ* into two distinct subfamilies.

a. CYPSELINÆ—tarsis plumosis : digitorum externi et medii phalangibus utriusque tribus : hallice antice vel lateraliter versa.

b. CHÆTURINÆ—tarsis nudis : digitorum phalangibus, quoad numerum, normalibus : hallice postice posita, interdum versatili.

The *Cypselinæ* contain two genera, which may be separated by the following diagnoses :—

1. *Cypselus* : tarsis plumosis, digitis nudis : hallice antica.

2. *Panyptila* : tarsis digitisque plumosis : hallice laterali.

The *Chæturinæ* appear to embrace four well-marked genera, which may be shortly diagnosed as follows :—

a, tarsis digito medio longioribus.

a', reatricibus spinosis.

a'', rachidum apicibus prominentibus, (1) *Chætura*.

b'', rach. apicibus non prominentibus, (2) *Cypseloides*.

b', reatricibus non spinosis (3) *Collocalia*.

b, tarsis digito medio brevioribus (4) *Dendrochelidon*.

One of the most remarkable points in the structure of the *Cypselidæ* is the great development of the salivary glands. In all the species of which the nidification is known, the secretion thus produced is used more or less in the construction of the nest. In most cases it forms a glue by which the other materials are joined together, and the whole nest affixed to the rock, wall, or other object against which it is placed. In some species of *Collocalia*, however, the whole nest is made up of inspissated saliva*, and becomes the edible bird's-nest so well known in the East.

The eggs of the *Cypselidæ* appear to be always regularly oval in shape, and colourless.

Subfam. I. CYPSELINÆ.

Genus 1. CYPSELUS.

Apus, Scopoli, Intr. Nat. Hist. p. 483 (1777). Type *C. apus*.

Cypselus, Ill. Prodr. p. 229 (1811). Type *C. apus*.

Micropus, Meyer & Wolf, Taschenb. i. p. 280 (1810). Type *C. apus*.

Brachypus, Meyer, Vögel Liv- und Esthlands, p. 142 (1815).

Type *C. apus*.

Tachornis, Gosse, B. Jamaica, p. 58 (1847). Type *C. phœnicobius*.

This genus embraces a series of rather varied forms, which it may be perhaps necessary ultimately to subdivide. For the present I

* The true constituent of the edible nests of the *Collocaliæ* was, I believe, first stated by Mr. Blyth (Journ. As. Soc. Beng. xiv. p. 210, 1845; cf. Ibis, 1860, p. 323).

prefer to use one generic name for the whole, arranging them as follows:—

A. Species orbis antiqui.

a. Cauda furcata.

1. CYPSELUS MELBA.

Hirundo melba, Linn.

H. alpinus, Scop., Levaill. Afr. pl. 43, undè *Cypselus gutturalis*, Vieill.

C. alpinus, Temm.

C. melba, Gould, B. Europe, pl. 35. f. 2; Blyth, Cat. p. 85; Jerdon, B. Ind. i. p. 175; Grill, Zool. Ant. p. 41; Tristram, P. Z. S. 1864, p. 431.

Fuscus: gutture et ventre albis: torque cervicali fusco: long. tota 8.0, alæ 8.7, caudæ 3.5, rectr. ext. 3.5, med. 3.0 poll. Angl.

Hab. Central and Southern Europe, Africa north of the Atlas, and South-western Asia, as a summer visitant; Crimea and eastern coasts of Black Sea (*Demidoff*); Palestine (*Tristram*); Algeria (*Tristram & Locke*); South Africa, Cape Colony (*Victorin & Levaill.*); India, Central and Southern (*Jerdon*); N.W. Himalayas and Cashmere (*Adams*).

2. CYPSELUS ÆQUATORIALIS.

Cypselus æquatorialis, Müll. Naum. 1851, iv. p. 25, et Ois. d'Afr. pl. 7.

C. rueppellii, Heugl. Journ. f. Orn. 1861, p. 421?

"Magnitudine *C. melbæ*, colore *C. apodis*" (Müller et Heuglin, l. c.).

Hab. Highlands of Abyssinia (*Müll.*); High plains of Woggara, Central Abyssinia (*Heuglin*).

I have not myself seen examples of this species; but Mr. Otto Finsch, of Bremen, who has examined Heuglin's specimens, has kindly furnished me with the following note upon them.

Minor quam C. melba, et ventre non albo: supra fumido-brunneus, aliquot metallice resplendens: subtus dilutior, mento pallidiore, et plumarum marginibus pallidioribus: long. al. 7.9, caudæ furcatæ rect. ext. 3.3, med. 2.4.

3. CYPSELUS APUS.

Hirundo apus, Linn.

Cypselus murarius, Temm.

C. apus, Blyth, Cat. p. 35; Jerdon, B. Ind. i. p. 177; Gould, B. Europe, pl. 35. f. 1; Grill, Zool. Ant. p. 41; Radde, Reisen, ii. p. 130; Tristram, P. Z. S. 1864, p. 431.

♂. *Fuliginoso-niger, gula alba: long. tota 6.8, alæ 6.6, caudæ rectr. ext. 3.0, med. 2.0.*

♀. *Paulo minor.*

Hab. Europe and Northern and Middle Asia, as summer visitant;

Palestine (*Tristram*); Afghanistan (*Blyth*); Cashmere (*Adams*); Egypt and Nubia (*Rüpp.*); Coasts of Black Sea, nesting in cliffs (*Demidoff*); Eastern Siberia (*Radde*); Madeira (*Harcourt*); Benguela (*Monteiro*); Cape Colony (*Layard*); Natal (*Ayres*).

There are two South-African specimens of a Swift in the Leyden Museum labelled "*Cypselus barbatus*," which differ from European examples principally in their lighter colour above, particularly on the secondaries and scapulars, in the white feathers of the gular patch presenting a narrow black central line, and in the feathers of the lower back, belly, and under wing-coverts being narrowly margined with white. Two examples from Natal, collected by Mr. Ayres* are similar. It is possible that this form may be entitled to rank as a species, to which Temminck's MS. name may be applied. But it would be desirable to obtain more skins for comparison, particularly examples from other parts of South Africa.

Mr. Layard says *C. apus* arrives at the Cape early in November (Cf. *Ibis*, 1864, p. 134), but does not breed in the colony, as far as he can ascertain.

Specimens collected by Heuglin at Keren, on the White Nile, in the Bremen Museum (probably those referred to in his article *Journal f. Ornithologie*, 1862, p. 422), are stated by Mr. Finsch to belong certainly to *C. apus*, although two of them present slight white marginations on the under surface. Heuglin's *C. aterrimus* (*l. c.*) is probably not different.

4. CYPSELUS PACIFICUS.

Hirundo apus, var. β , Pallas, *Zoogr. Rosso-Asiat.* i. p. 540.

Cypselus pacificus, Lath.

C. australis, Gould, *B. Austr.* ii. pl. 11.

C. vittatus, Jard. & Selby, *Ill. Orn. n. s. t.* 39; Swinhoe, *P. Z. S.* 1863, p. 263; Moore, *Cat. E. I. Mus.* p. 385; Blyth, *Cat.* p. 86.

C. apus (partim), Radde, *Reisen*, ii. p. 130.

♂. *Niger*: *uropygio albo*: *subtus fusco-niger, plumis late albo marginatis*: *gutturæ medio albo, lateraliter grisescente*: *subalaribus fusco-nigris albo marginatis*: *long. tota 7·5, alæ 7·5, caudæ rectr. ext. 3·3, med. 2·2.*

♀. *Paulo minor.*

Hab. Eastern Siberia, Baikal (Pallas & Radde); China, summer visitant from Amoy to Talien Bay (Swinhoe); Formosa (Swinhoe); Pinang (Cantor); Malay peninsula (Blyth); Eastern Australia (Gould); Cape York (MacGillivray).

I cannot distinguish Australian and Asiatic examples of this species. It would be desirable to know whether it occurs in the great Indian islands and the Moluccas. There are no specimens from these localities in the Leyden Museum, nor did Mr. Wallace obtain it.

Mr. Swinhoe says of the species (*l. c.*):—"Sexes of similar plumage; wings and tail of variable length in both, in the former seldom more than $\frac{1}{2}$ inch difference between two specimens."

* Cf. Gurney in *Ibis*, 1863, p. 321, et 1865, p. 264.

Mr. Swinhoe's specimens, which I have examined, measure as follows:—

	L. t.	alæ.	caudæ.
(1) ♂, Amoy, May 1859	7·5	7·5	3·3
(2) ♀, Amoy, April 1859	6·5	7·0	3·0
(3) ♂, Amoy, May 1859	6·5	7·2	3·1
(4) ♂, Talien Bay, July 1860	7·2	7·2	3·2

I can by no means agree with Radde in considering this species merely a variety of *C. apus*, although they may both occur together in Dauria.

5. *CYPSELUS LEUCONYX*.

Cypselus, sp.?, Blyth, J. A. S. B. xi. p. 886.

C. leuconyx, Blyth, J. A. S. B. xiv. 212; Cat. p. 85; Jerdon, B. Ind. i. p. 180.

Hab. India: Malabar (*Jerdon*); N.W. Himalayas, Simla (*Blyth*).

The only examples of this species I have met with are in Mr. Gould's collection. They are not in good condition. They appear to be smaller than *C. pacificus*, and blacker above; the white bar on the rump is narrower, and there is much less white on the throat. I admit this species with doubt, and should wish to see further examples before deciding definitely as to its validity.

6. *CYPSELUS UNICOLOR*.

Cypselus unicolor, Jard. Journ. Nat. & Geogr. Sc. i. p. 242; Jard. & Selby, Ill. Orn. ii. pl. 83; Vernon Harcourt, P. Z. S. 1851, p. 144; Ann. N. H. ser. ii. vol. xv. p. 434; A. Newton, Ibis, 1863, pp. 186, 192.

Nigro-fuliginosus unicolor: *cauda valde furcata*: *long. tota* 6·5, *alæ* 5·5, *caudæ rectr. ext.* 2·8, *med.* 1·9.

Hab. Madeira, permanent resident (*Harcourt*).

Mus. Brit.

"Smaller than *C. apus*, and tail more deeply forked; chin sometimes almost as white as in the Common Swift."—*Harcourt*.

7. *CYPSELUS CAFFER*.

Cypselus caffer, Licht. Doubl. p. 58; Cab. Mus. Hein. ii. p. 85; Grill, Zool. Ant. p. 41.

C. pygargus, Temm. Pl. Col. 460. f. 1.

Niger: *gutturæ et vitta uropygiali albis*: *pileo et alis murino-fuscis*: *cauda profunde furcata*: *long. tota* 6·2, *alæ* 5·8, *caudæ rectr. ext.* 2·1, *med.* 1·8.

Hab. Nubia (*Licht.*); Abyssinia (*Heuglin*); Natal (*Ayres*); Cape Colony, generally distributed (*Layard*); Damara-land (*Andersson*).

A very distinct species, easily recognizable by its deeply forked tail and sharply pointed outer rectrices. Dr. Cabanis informs me that *Cypselus caffer*, Licht. (type), is certainly the same as *Cypselus pygargus*, Temm. Bonaparte (Consp. p. 65) and Radde (Reisen, ii. p. 130) have referred Lichtenstein's name to *C. pacificus*.

There are four stuffed examples of this species in the Leyden Museum from the Cape, and one from Abyssinia, the latter collected by Heuglin at Dembea in May 1862, and labelled *C. abyssinicus*. Under this name it is referred to in 'Journ. f. Orn.' 1862, p. 422.

Levaillant's *Martinet à croupion blanc* (Ois. d'Afr. pl. 244. f. 1; unde *Hirundo nigra*, Vieill. Enc. p. 528, et *H. leucorhoa*, Shaw, Gen. Zool. x. p. 98; et *Cypselus leucorrhous*, Stephens, Gen. Zool. xiii. pt. 2. p. 81) is, as Sundevall suggests (Krit. Framst. p. 51), in all probability *C. caffer*. Levaillant's figure wants the white throat, &c., and is not recognizable.

Mr. E. L. Layard, who has kindly sent me a skin of this species collected in Damara-land by Mr. Andersson, informs me that it is a very abundant species at the Cape, and that he has received it from all parts of the colony. "It takes possession of the long-necked nests of the Cape Swallow (*Hirundo capensis*), and lays four or five pure-white eggs of a truncated shape. It breeds about houses when in town, and about rocks in the country. Its flight precisely resembles that of *C. apus*, and the two are generally seen together. I can only distinguish them by the white rump of the former, seen when going away from me."

3. CYPSELUS PARVUS.

Cypselus parvus, Licht. Doubl. p. 58; Streubel, Isis, 1848, p. 351; Brehm in Cab. Journ. f. Orn. 1854, Extrah. p. 95.

C. ambrosiacus, Temm. Pl. Col. 460. f. 2; Hartlaub, West. Afr. p. 24; Antinori, Cat. p. 24.

Murino-fuscus, gutture albido fusco striolato: alis et cauda æneo tinctis: cauda profundissime furcata: long. tota 7.0, alæ 5.4, caudæ 1.4, rectr. ext. 4.0, med. 1.4.

Hab. Nubia (Licht.); vicinity of Chartoum, very common (*Antinori*); "Nesting in companies, in the Tompalm (*Crucifera thebaica*), Sept 1850, at Elefahn, on the Blue Nile" (*Brehm*, l. c.); Western Africa, Gold-coast (*Nagtglass*); Fernando Po (*Fraser*); Gaboon (*Du Chaillu*); Mayotte, Comoro Islands (*Pollen*); Madagascar (*E. Newton*).

Hirundo ambrosiaca, Gm. (S. N. i. p. 1021), is founded on Brisson's *Hirundo riparia senegalensis* (Orn. ii. p. 508), which has twelve rectrices, according to that accurate describer, and therefore cannot be a Cypseline bird. We must consequently adopt Lichtenstein's name for this species, founded on Nubian specimens.

The skin from which the characters are taken is from Gaboon (*Du Chaillu*). Two other examples in the British Museum (from Fernando Po) are smaller, and have the throat whitish, minutely streaked with black. A fourth from the Niger Expedition is nearly similar, but has the throat dark, nearly uniform with the body below, and scarcely any indications of striations. A Madagascar skin in Mr. Newton's collection measures: "long. tota 6.4, alæ 5.3, caudæ rect. ext. 3.7, med. 1.7."

I cannot make out this species without a larger series of speci-

mens, particularly examples from Eastern Africa, of which I have none accessible. But I think it probable there are two species confounded under this name, as Cassin (List of *Cypselidæ* in Philad. Acad. Collection) keeps *C. ambrosiacus* distinct from *C. parvus*.

In the Leyden Museum are three specimens from Western Africa (Gold-coast, from Governor Nagtglas, 1861-2), all of the smaller variety, and nearly uniform in colour, with the throat obscurely punctured with whitish. A fourth rather larger (probably Temminck's type) from Nubia is much faded. It has the throat white, obscurely punctulated with fuscous. A skin in the same museum from Mayotte, lately sent by Mr. Pollen, agrees with Mr. Newton's bird from Madagascar.

9. *CYPSELUS BATASSIENSIS*.

Cypselus batassiensis, Gray, Griff. An. Kingd. ii. p. 60; Blyth, Cat. p. 86; Moore & Horsf. Cat. i. p. 108; Jerdon, B. Ind. i. p. 180.

C. palmarum, Gray, Ind. Zool. pl. 35. f. 1.

Nitenti-cineraceo-fuscus; subtus dilutior: alis et cauda saturatioribus: cauda profunde furcata: long. tota 5·0, alæ 4·5, caudæ rectr. ext. 2·5, med. 1·25.

Hab. Peninsula of India, and Ceylon, generally distributed (Jerdon); Assam (MacClelland); Arracan (Blyth); Tenasserim (Brit. Mus.).

The nest of this Swift is always placed in the fronds of the *Tal* or Palmyra palm (*Borassus flabelliformis*). See the notes collected in Moore and Horsfield's 'Catalogue' and Jerdon's 'Birds of India.'

10. *CYPSELUS INFUMATUS*, sp. nov.

Fumoso-nigricans, alis et cauda æneo parum nitentibus: subtus dilutior: cauda furcata: long. tota 4·7, alæ 4·5, caudæ rectr. ext. 1·11, med. 1·3.

Hab. in ins. Borneo, Banjermassing (Mottley).

Mus. A. R. Wallace.

Obs. Aff. *C. batassiensis* ex India, sed colore saturatiore et cauda brevior et minus furcata distinguendus.

I have as yet seen but a single example of this species, now in Mr. Wallace's possession. It formed part of the collection made by the late Mr. Mottley at Banjermassing, Borneo, for Mr. L. L. Dillwyn, M.P., of which I have given a list (P. Z. S. 1863, p. 206). It stands there incorrectly determined as a *Collocalia*, sp.?, but is decidedly a *Cypselus*, allied to *C. batassiensis* of India.

I have searched in vain for this species among the treasures of the Leyden Museum.

b. Cauda fere æquali.

11. *CYPSELUS SUBFURCATUS*.

Cypselus affinis, Strickl. P. Z. S. 1846, p. 99; Swinhoe, Ibis, 1860, p. 48, et 1861, p. 30.

C. subfurcatus, Blyth, J. A. S. B. xviii. p. 807, et Cat. p. 85; Moore & Horsf. Cat. i. p. 386; Burgess, P. Z. S. 1854, p. 265; Swinhoe, P. Z. S. 1863, p. 264.

C. leucopygialis, Cassin, Pr. Acad. Phil. v. p. 58, pl. 13. f. 1.

Niger: gutture et vitta uropygiali albis: fronte murina: cauda vix furcata, omnino nigra: long. tota 5·2, alæ 5·3, caudæ rectr. ext. 2·0, med. 1·8.

Hab. Southern China and Formosa (*Swinhoe*); Malay peninsula; Penang (*Cantor*); Malacca (*Wallace*); Sumatra (*Cassin*); Java (*Müller*).

Of this species Mr. Swinhoe writes (P. Z. S. 1863, p. 264)—“Larger than *C. affinis*, and of a much blacker and glossier colour, with much more white on the throat; tail longer and subfurcate. Sexes alike. Wings varying somewhat in length. Resident on the Chinese coast not much higher than Amoy, whence it ranges southwards to Malacca. Found also in Southern Formosa.”

I do not find much difference *in size* between Mr. Swinhoe's examples of this species and others of *C. affinis*. But I think the two species are distinct. In this bird the plumage is altogether darker, the head, wings, and tail being glossy black like the back. In *C. affinis* these parts are brown. The furcation of the tail also presents a constant and well-marked difference, and the tail itself is decidedly longer.

In Southern China *C. subfurcatus* builds its nest “under the eaves and rafters of the houses, much in the form of the House Martin (*Chelidon urbica*), but the exterior coating of it differs in being composed of thin layers of wool, hair, and dried grass, glued one above the other with the saliva of the bird, and lined internally with feathers.” (Swinhoe, Ibis, 1863, p. 254.)

In Penang, according to Blyth, quoting Col. Low, several pairs of this Swift inhabit a “continuous common nest” placed under the eaves of the verandahs (J. A. S. B. xviii. p. 807).

There are three specimens of this species in the Leyden Museum from Java (Samarang), collected by S. Müller in 1828, and labelled “*Cypselus leucorrhous*, S. Müller, n. sp.” In the same collection are two examples labelled “Nepal (*Hodgson*).” If this latter locality be correct, it would appear that *C. subfurcatus* ranges up the Malayan peninsula to the frontiers of Nepal, as is the case with many other of the Malayan representatives of Indian species. But *C. nipalensis*, Hodgson (J. A. S. B. x. 1836, p. 780), is usually referred to *C. affinis*.

12. CYPSELUS AFFINIS.

Cypselus affinis, Gray, Ill. Ind. Zool. pl. 35. f. 2; Jerdon, B. Ind. i. p. 178; Blyth, Cat. p. 86; Horsf. Cat. i. p. 106; Jard. Contr. Orn. 1849, p. 5, et 1851, p. 157.

C. montanus, Jerdon.

C. abyssynicus, Streubel, Isis, 1848, p. 354; Hartl. Orn. West. Afr. p. 24.

C. galilæensis, Ant. Naumann. v. p. 307, et Cat. p. 24; Tristram, P. Z. S. 1864, p. 431.

Supra fusco-niger: dorso nigro, æneo tincto: pileo fuscescente, fronte dilatiore: subtus fuscescenti-niger, gula alba: long. tota 4·5, alæ 5·0, caudæ 1·8.

Hab. India, generally distributed, and Ceylon (*Jerdon*); Kurra-chee (*Mus. Brit.*); Palestine, Jordan valley (*Ant. & Tristram*); Abyssinia (*H. & Ehr.*); Sennaar, on the Blue Nile (*Antinori*); Western Africa, St. Thomas (*Hartl.*); Cape (*Mus. Brit.*).

This Swift, as I have pointed out (*Ibis*, 1865, p. 234), appears to be a very widely distributed species, and one in which the plumage varies greatly in intensity of colouring, without presenting any constant differences.

Indian skins differ amongst themselves in depth of tint, some being of a much more brownish black than others. A specimen in Mr. Gould's collection, obtained by Captain Burgess in the Deccan, is quite undistinguishable from Mr. Tristram's Palestine skins, which are of the darker type. Dr. Cabanis has kindly compared one of the Palestine birds with the type of *C. abessynicus* in the Berlin Museum, and pronounces them identical. I have examined the specimen from St. Thomas, mentioned by Hartlaub (*West. Afr.* p. 24), and can see little distinction, except that the Palestine bird presents a whitish front and superciliaries, which, however, are quite apparent in other African specimens.

In India this Swift builds in colonies "wherever there are large towns, large pagodas, tombs, or other old buildings. Their nests are composed of feathers, grass, straw, &c., agglutinated together by the secreted mucus of their salivary glands" (*Jerdon*). It also occasionally breeds in rocks, in India, and in the Jordan valley appears to follow this practice exclusively, sometimes appropriating the nest of *Hirundo rufula* and completing it after its own fashion. See Mr. Tristram's interesting notes in these 'Proceedings' (1864, p. 131) and in 'The Ibis' (1865, p. 76 *et seq.*).

B. Species Americanæ (*Tachornis*, Gosse).

Mr. Gosse has proposed the name *Tachornis* for his *Tachornis phœnicobia*. But I do not see how this bird differs from the weaker species of the genus *Cypselus* of the Old World, and for the present I am inclined to keep the Neotropical members of the group under the same generic designation.

13. CYPSELUS PHÆNICOBIVS.

Tachornis phœnicobia, Gosse, B. Jamaica, p. 58; ejusd. Ill. B. Jam. pl. 9; Gundlach, Journ. f. Orn. 1856, p. 5.

Cypselus iradlii, Lembeye, Av. de Cuba, t. 7. f. 4.

Niger, alis fusciscentioribus: uropygii fascia lata cum gutture toto et ventre medio albis: cauda paulum furcata: long. tota 4·0, alæ 4·0, caudæ rectr. ext. 1·7, med. 1·4.

Hab. Jamaica and Cuba.

"Builds in the hollows of the dried spathes of the Cocoa-nut Palm (*Cocos nucifera*), also on the plaited surface of the fronds of the Palmetto (*Chamærops*, sp.). Nest made of silk-cotton (*Bombax*) and feathers" (Gosse, *l. c.*). Mr. Marsh gives an interesting note on the recent change of habits in nesting in this species, in the 'Proc. Acad. Sc. Philad.' 1863, p. 283.

I have two Jamaican skins of this species, kindly presented to me by the Rev. J. M. Philippo of Spanish Town, but I have never compared them with Cuban skins, which are stated to be identical.

14. CYPSELUS SQUAMATUS. (Pl. XXXIII.)

Cypselus squamatus, Cassin, Pr. Ac. Phil. vi. p. 369 (1853).

C. marginipennis, Natt. MS. sp. no. 372.

Supra æneo-niger, plumis subtiliter albo marginatis: subtus obscure albus, lateraliter nigricans, subalaribus fusco-nigris: cauda longa, profunde furcata: long. tota 5.4, alæ 4.0, caudæ rectr. ext. 2.8, med. 1.2.

Hab. Cayenne (*Mus. Brit.*); British Guiana (*Dr. Dalton*); Brazil, Nas Furnas, and Riacho (June), Borba (winter months) (*Natt.*).

This species was first described by Mr. Cassin (*l. c.*), from specimens obtained by Dr. Dalton in British Guiana, although long previously discovered by the late J. Natterer in Brazil.

Natterer's MS. notes concerning it, most obligingly communicated to me by Herr v. Pelzeln, are as follows:—

"Nas Furnas, 13 June, 1823, four ex. obtained out of a flock of seven flying over a pool. Their flight is the same as that of other Swifts. Male, just completed moulting, iris dark brown; tarsus and toes reddish grey, covered sparingly with little feathers; claws reddish grey, with the tips darker; the deeply cleft tail consists of ten feathers, the outermost 2" 10''' in length, the middle 1½" shorter; length 6" 1"', expanse 10" 1"', the tail reaches 2''' beyond the end of the wings. Apertures of the nostrils elongated, small, with elevated edges, placed close to the edge of the culmen, the apertures turned vertically upwards and forming a horizontal line.

"A second ex. in moult, bill black; length 5" 9'', expanse 9" 11'', end of wings reaching 2''' beyond the outer tail-feathers; outer tail-feathers 2½'', the medial ditto 14''' shorter.

"This bird builds its nest in the beautiful hanging withered fronds of the *Puriti* Palm*. It is made of Pigeons' feathers stuck together with gum†. The young must hold fast or they would fall out, since there is only a very small place hollowed out for them near the entrance. The nest is stuck on to the under side of the leaf near the stalk, and so protected from the rain. The eggs are white, two or three in number."

* In answer to an inquiry respecting this Palm, Dr. R. Spruce writes:—"The Palm you ask about is doubtless *Mauritia venifera*, L., called *Mauriti* on the Amazon, but *Buriti* elsewhere in Brazil, if I may trust to Martius, although a German is apt to hear *b* or *p* for *m* in foreign languages."

† No doubt the saliva of the bird itself, as in the case of other *Cypselidæ*.—P. L. S.

Herr v. Pelzeln adds—"The two nests brought back by Natterer are of the following dimensions: breadth rather more than 2", diameter of entrance-hole about 1". The feathers used in construction are greyish brown with white shafts, with some green feathers mixed in. The cement is doubtless the saliva of the bird, as is the case with other *Cypselidæ*."

Mr. Wolf's plate (Pl. XXXIII.) includes a figure of the nest from a drawing kindly sent me by Herr von Pelzeln.

15. *CYPSELUS ANDICOLA*.

Cypselus andicolus, Lafr. et d'Orb. Syn. p. 70; d'Orb. Voy. p. 358, pl. 42. f. 2.

Fumoso-fuscus, uropygio collo undique et corpore subtus albidis: crisso fusco: cauda elongata, furcata, fusco-nigra: long. tota 5.5, alæ 5.5, caudæ rectr. ext. 2.6, med. 1.7.

Obs. Of this species I have only seen the single specimen in the British Museum.

Hab. Bolivia; La Paz, Cavari, and Inquisivi, alt. 9000 feet (*D'Orb.*).

Mus. Brit. ex Bridges.

15. *CYPSELUS MONTIVAGUS*.

Cypselus montivagus, Lafr. et d'Orb. Syn. Av. p. 70; d'Orb. Voy. p. 357, pl. 42. f. 1.

Supra fusco-niger, tectricum alarium majorum quatuor aut quinque dorso proximis apice et margine albis, reatricibus (prima laterali excepta) apice pogonio externo pallide rufescentibus, duabus mediis apice albescentibus: macula parva ante et supra oculos alba: subtus fusco-niger: gutture colloque antico usque ad pectus fasciaque anali albis: tectricibus caudæ inferis, pectore ventrequae nigris: alis plicatis lineas octo cauda longioribus: rostrum minutum, breve, supra valde curvatum: long. tota 150, alæ 125, caudæ 40 mill. Gall. (d'Orb.).

Hab. Bolivian Andes, between Samaypata and Santa Cruz de la Sierra (*D'Orb.*).

I have never seen examples of this species. The figure represents the tarsi naked and the hallux placed posteriorly, so that it may belong to the next subfamily. But very little dependence can be placed on D'Orbigny's figures; and Bonaparte says (*Consp.* p. 66) "*minime ACANTHYLIS*."

Genus 2. *PANYPTILA*.

Panyptila, Cassin, Wiegman. Arch. xiii. p. 345 (1847). Type *P. cayennensis*.

Pseudoprocne, Streubel, Isis, 1848, p. 358. Type *P. cayennensis*.

1. *PANYPTILA CAYANENSIS*.

Le Martinet à collier de Cayenne, Buff. Pl. Enl. 725. f. 2.

Hirundo cayanensis, Gm. S. N. i. p. 1024.

Panyptila cayanensis, Cab. Wieg. Arch. xiii. p. 345 (1847).

Cypselus cayanensis, Bp. Consp. p. 66.

Pseudoprocne cayennensis, Streubel, Isis, 1848, p. 358.

Splendenti-nigra, macula anteoculari utrinque, gutture toto et torque angusto postico cum plaga hypochondriali utrinque albis : cauda profunde furcata : long. tota 4·7, alæ 4·8, caudæ rectr. med. 1·2, ext. 2·3.

Hab. Cayenne and Brazil ; Bahia (*Mus. Brit.*).

2. PANYPTILA SANCTI-HIERONYMI.

Panyptila sancti-hieronymi, Salvin, P. Z. S. 1863, p. 190, pl. xxii.

Sericeo-nigra ; linea ante oculos, gutture toto ad medium pectus et torque postico cum plaga hypochondriali utrinque albis : cauda profunde furcata : long. tota 7·5, alæ 7·3, caudæ rectr. ext. 3·6, ext. 1·9.

Hab. Guatemala, prov. Vera Paz near San Geronimo.

Obs. Similis *P. cayanensi* et ejusdem formæ sed fere duplo major. See Mr. Salvin's description of the singular nest of this bird, *l. c.*

3. PANYPTILA MELANOLEUCA.

Cypselus melanoleucus, Baird, Pr. Acad. Phil. 1854, p. 118 ; B. N. Am. p. 141.

Panyptila melanoleuca, Sclat. et Salv. Ibis, 1859, p. 125.

Nigra : secundariarum apicibus, gutture toto et pectore medio cum macula laterali utrinque albis : cauda furcata : long. tota 6·0, alæ 5·7, caudæ rectr. med. 1·8, ext. 2·3.

Hab. Colorado basin, New Mexico (*Baird*) ; Guatemala, near Dueñas (*Salvin*).

Subfam. II. CHÆTURINÆ.

Genus 1. CHÆTURA.

Chætura, Stephens, Gen. Zool. xiii. pt. 2. p. 76. Type *C. pelasgia*.

Acanthylis, Boie, Isis, 1826, 971. Type *C. spinicauda*.

Hemiprocne, Nitzsch, Pterylogr. p. 123, 1840. Type *C. zonaris*.

Pallene, Lesson, Compl. Buffon, viii. p. 493. Type ?.

Hirundapus, Hodgson, J. A. S. B. v. p. 780 (1836). Type *C. caudacuta*.

A. Species majores.

a. Species Asiaticæ (*Hirundinapus*).

1. CHÆTURA CAUDACUTA.

Hirundo caudacuta, Lath. Ind. Orn. Suppl. p. 57.

Hirundo fusca et *Chætura australis*, Steph. Gen. Zool. xiii. p. 76.

Chætura macroptera, Sw. Zool. Ill. n. s. pl. 42.

Acanthylis caudacuta, Gould, B. Austr. ii. pl. 10 ; v. Schrenck,

Reise, i. p. 250 ; Radde, Reisen, ii. p. 129 ; Swinhoe, P. Z. S. 1863, p. 263 ; Jerd. B. Ind. i. p. 175.

Chætura nudipes, Hodgs. J. A. S. B. v. p. 779 (1836).

Cypselus leuconotus, Deless. Mag. de Zool. 1840, Ois. t. 20 ; Souv. Voy. dans l'Inde, Ois. t. 9.

Acanthylis caudacuta, Jerd. B. Ind. i. p. 173.

Acanthylis fusca, Blyth, Cat. p. 84.

Hirundo ciris, Pallas, Zoogr. R.-A. p. 541(?).

Fusca, pileo alis et cauda obscurioribus, æneo perfusis : gutture et crisso pure albis : fronte interdum albida : long. tota 7·5, alæ 8·0, caudæ 2·2.

Hab. Eastern Australia and Tasmania (*Gould*) ; China, Amoy (*Swinhoe*) ; South-Eastern Himalayas, Nepal, Sikim, Bootan (*Jerdon*) ; Amoorland (*v. Schrenck and Radde*).

Mr. Gould figures this fine species in the 'Birds of Australia' with a conspicuous white front. This is so in some Australian examples, but in others (as in a Tasmanian skin in Mr. Gould's collection) the front is nearly black. This is likewise the case in one of Mr. Hodgson's skins typical of his *Acanthylis nudipes*. The Himalayan skin is also rather darker below than the Chinese bird, but I can see no other difference.

It would be interesting, however, to know whether this bird is found anywhere between Asia and North-Eastern Australia, as in Celebes a very distinct form occurs.

2. CHÆTURA GIGANTEA.

Cypselus giganteus, Temm. Pl. Col. 364.

Acanthylis gigantea, Jerd. B. Ind. i. p. 172.

A. caudacuta, Blyth, Cat. p. 84.

Nigricanti-fusca, pileo alis et cauda æneo perfusis : crisso et hypochondriis pure albis : long. tota 8·4, alæ 8·0, caudæ rectr. med. 2·6, ext. 2·2.

Hab. Java (*Van Hasselt*) ; Sumatra (*Mus. Lugd.*) ; Malay peninsula up to Arakan (*Blyth*) ; Nilgherries (*Jerdon*) ; Ceylon (*Layard*) ; Pinang (*Cantor*) ; Singapore (*Wallace*) ; Celebes (*Mus. Lugd.*).

One example of this Swift is in Mr. Wallace's collection, shot by himself at Singapore ; but the species is not in the British Museum. In form it is identical with the preceding, but is easily distinguishable by its smoky-black throat being uniform with its breast. The spines of the tail-feathers are rather stronger, particularly in the medial pair.

There are four examples of this species in the Leyden Museum. Two from Java and Sumatra belong to the typical form ; but two others, from Celebes (Menado), almost merit specific separation. In these the whole body, above and below, is dark brownish black glossed with purple, like the wings, and there is a well-marked narrow white patch on the front on each side of the nostrils. This appears to constitute a local variety, which may be called *Chætura gigantea*, var. *celebensis*.

b. Species Americanæ (*Hemiprocne*).3. *CHÆTURA SEMICOLLARIS*.

Acanthylis semicollaris, De Saussure; Rev. Zool. 1859, p. 118.

Chætura semicollaris, Sclater, Cat. Am. B. p. 282, et P. Z. S. 1863, p. 99.

Nigra; semitorque postico angusto, albo: long. tota 10·0, alæ 10·0, caudæ 3·0.

Hab. Mexico.

Mus. P. L. S.

This fine Swift is easily distinguishable from *C. zonaris* by its larger size, and the entire absence of any traces of a white collar below.

4. *CHÆTURA BISCUTATA*, sp. nov. (Pl. XXXIV.)

Cypselus biscutata, Natt. in Mus. Vindob., no. 1139.

Fumoso-nigra, fronte et gutture dilutioribus; nucha et plaga lata pectorali albis; cervice laterali corpore concolore: long. tota 8·1, alæ 8·3, caudæ 3·2.

Hab. Brazil, Rio Janeiro, and Ypanema (*Natt.*).

Mus. Vindob. et P. L. S.

Obs. Similis *C. zonari*, sed facie albicante et cervicis lateribus dorso concoloribus.

I have only seen Natterer's examples of this species, which were collected in the vicinity of Rio, in the month of June, and at Ypanema, in the months of June and September. I have some hesitation in considering it more than a variety of *C. zonaris*; but, on the whole, I think we may safely rely on Natterer, who separates it in his MS. as distinct.

5. *CHÆTURA ZONARIS*.

Hirundo zonaris, Shaw, in Mill. Cim. Phys. pl. 55.

Hirundo albicollis, Vieill. Nouv. Dict. xiv. p. 524, et Gal. Ois. pl. 120.

Acanthylis albicollis, Sclater, P. Z. S. 1854, p. 10, et 1858, p. 59.

Cypselus collaris, Max. Beitr. iii. p. 344; Temm. Pl. Col. 195.

Hemiprocne collaris, Nitzsch, Pterylogr. p. 123.

Pallene collaris, Boie, Isis, 1844, p. 168.

Hemiprocne zonaris, Sclat. et Salv. Ibis, 1860, p. 37; Cab. et Heine, Mus. Hein. iii. p. 84.

Acanthylis collaris, Gray, List Spec. Fiss. p. 15; Bp. Consp. p. 64, Burm. Syst. Ueb. ii. p. 364.

Chætura zonaris, Sclater, P. Z. S. 1861, p. 79, 1863, p. 99, et Cat. Am. B. p. 282.

Hemiprocne torquata, Streubel, Isis, 1848, p. 362.

Fusco-nigra; torque undique lato, albo: long. tota 9·0, alæ 9·0, caudæ 2·5.

Hab. Western portion of South America, from the La Plata northwards, and through Central America to Guatemala; Jamaica (*Osburn*); St. Domingo (*Sallé*).

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In 'Journ. f. Orn.' (1862, p. 164), Dr. Cabanis has separated the northern form of this bird (extending from Guiana to Mexico) as *Hemiprocne albicincta*. The differences appear to me too slight to be insisted upon: they are the smaller dimensions and narrower white neck-band behind of the northern form. I have Guatemalan and Jamaican skins fully as large as those from Brazil; and in one Brazilian skin the neck-band is narrower behind than in several northern examples.

Natterer's specimens of this species (sp. no. 95) were obtained at Rio Janeiro (December), Ypanema (June, July, September), and Sapotioa (February).

B. Species minores, Americanæ, Africanæ et Asiaticæ (*Chætura*).

α. Species Americanæ.

6. CHÆTURA PELASGIA.

Hirundo pelasgia, Linn. S. N. i. p. 345; Wils. Am. Orn. v. p. 48, pl. 39. f. 1.

Chætura pelasgia, Steph. Gen. Zool. Birds, xiii. p. 76; Baird, B. N. Am. p. 144; Sclat. Cat. Am. B. p. 282, P. Z. S. 1863, p. 100.

Acanthylis pelasgia, Bp. Consp. p. 64; Cass. Ill. B. Cal. i. p. 241.

Hemiprocne pelasgia, Streubel, Isis, 1848, p. 362.

Fuliginosa, gutture pallidiore; supra æneo tincta, uropygio paulo dilutiore: long. tota 4·7, alæ 5·0, caudæ 1·8.

Hab. Eastern United States of North America.

Mus. P. L. S.

Dr. Brewer gives the following account of the nidification of this bird:—"The nest of the Chimney Swallow is one of the most remarkable structures of the kind to be found among the handiworks of even this interesting family, nearly all of whom are far from being undistinguished for their architectural accomplishments. It is composed of small twigs of nearly uniform size, which are interwoven into a neat semicircular basket.

"In selecting the twigs with which to construct the nest, the Swift seems to prefer to break from the tree such as are best adapted to its wants, rather than to gather those already scattered upon the ground. This is done, with great skill and adroitness, while on the wing. Swooping on the coveted twig, somewhat as a Hawk rushes on its prey, it parts it at the desired place, and bears it off to its nest. This fact is familiar to all who have attentively observed their habits. Each of these twigs is strongly fastened to its fellows by an adhesive saliva secreted by the bird; and the whole structure is as strongly cemented to the side of the chimney in which it is built, by means of the same secretion. When dry this saliva hardens into a glue-like substance, apparently firmer even than the twigs themselves. In separating a nest from the side of the chimney, I have known

portions of the brick to which it was fastened to give way sooner than the cement with which it had been secured."—*N. Am. Ool.* i. p. 109.

7. CHÆTURA VAUXII.

Cypselus vauxii, Towns. Journ. Acad. Philad. viii. p. 148.

Acanthylis vauxii, Bp. Compt. Rend. xxxviii. p. 660, Notes s. les coll. de Delattre, p. 90, et Consp. p. 64; Cass. Ill. B. Cal. i. p. 250.

Chætura vauxii, Baird, B. N. Am. p. 145; Sclat. Cat. Am. B. p. 282, et P. Z. S. 1863, p. 100.

Chætura — ?, Sclat. et Salv. Ibis, 1860, p. 37.

Fuliginosa; dorso et capite æneo tinctis; uropygio pallidiore; gutture albo; ventre obscure fuliginoso, gulam versus sensim dilutior: long. tota 4·3, alæ 4·7, caudæ 1·5.

Hab. Western North America, from British Columbia south through Mexico to Guatemala.

Mus. P. L. S.

Readily distinguishable from *C. pelasgia* by its smaller size, paler rump, nearly white throat, and lighter underparts. *C. poliura*, which somewhat resembles it, is blacker on the back and head, and much darker below.

8. CHÆTURA POLIURA.

Cypselus poliourus, Temm. Tabl. Méth. p. 78 (ex Buff. Pl. Enl. 726. f. 2).

Acanthylis cinereicauda, Cass. Proc. Acad. Philad. 1850, p. 58.

Cypselus pelasgius, Max. Beitr. iii. p. 347.

Acanthylis oxyura, Burm. Syst. Ueb. ii. p. 366.

Acanthylis polioura, Bp. Consp. p. 64.

Chætura poliura, Sclater, Cat. Am. B. p. 283, et P. Z. S. 1863, p. 101.

Acanthylis brachyura, Jard. Ann. N. H. ser. 1. xviii. p. 120 (1846)?

Supra æneo-nigra; uropygio et tectr. caudæ sup. fuliginosis; subtus fuliginosa, gutture albicantiore: long. tota 4·2, alæ 4·8, caudæ 1·8.

Hab. Cayenne (*Buff.*); Tobago (*Kirk*).

Mus. P. L. S.

One of the specimens of this species in my collection is said to be from Brazil; but the other is certainly from Cayenne, and Buffon describes the species as from that country. I have compared my examples with the type of Mr. Cassin's *A. cinereicauda* in the Philadelphia collection, and with type specimens of M. Temminck's *C. poliurus* in the Leyden Museum, and find them all identical. A specimen of Mr. Kirk's from Tobago, obligingly presented to me by Sir William Jardine, and typical of his *A. brachyura*, does not seem to be decidedly different, although the tail is rather shorter and the upper coverts are much produced, so as to reach nearly to the end of the rectrices. It is, however, possible that this form may prove distinct on comparison of a suite of specimens.

Natterer obtained specimens of this Swift (sp. no. 96) at Rio Janeiro (December and July), Engenho do Cap Gama (September), Resacea (November), Ypanema (February), Yturaré (February), Borda do Matto (November), and Trisauga (February).

9. CHÆTURA CINEREIVENTRIS.

Cypselus acutus, Max. Beitr. iii. p. 351 (nec auct.).

Acanthylis spinicauda, Burm. Syst. Ueb. ii. p. 366.

Chætura cinereiventris, Sclater, Cat. Am. B. p. 283, et P. Z. S. 1863, p. 101, pl. xiv. f. 1.

Æneo-nigra; uropygio et corpore subtus cinereis; crisso nigricante: long. tota 4·3, alæ 4·2, caudæ 2·8.

Hab. South-eastern Brazil.

Mus. P. L. S.

The cinereous uropygium and body beneath render this Brazilian bird very easily recognizable on comparison with its congeners, though it has been hitherto always confounded with one or other of them.

Two examples of this species in the Leyden Museum are marked *C. spinicauda*, while the same name is more correctly applied to a third specimen belonging to the next species.

Natterer obtained examples of this species (his no. 97) at Rio Janeiro (December), Marambaya (March), Registre do Sai (April), and Borba (July).

Natterer's remarks (as kindly communicated to me by Herr v. Pelzeln) concerning this species are as follows:—

“Borba, July 8th, 1830.—Just before sunset almost every day a pretty large flock of this Swift sweeps with extraordinary rapidity over the village. In the winter months (from December to March) the Puriti Swifts* sweep over the village in the afternoon, but they do not fly so swiftly as the present bird, which comes in later in the evening, and flies at a higher elevation. There have been now no Puriti Swifts to be seen here for several months.”

10. CHÆTURA SPINICAUDA.

Cypselus spinicaudus, Temm. Tabl. Méth. p. 78 (ex Buff. Pl. Enl. 726. f. 1).

Hirundo pelagica, var., Lath. Ind. Orn. ii. p. 581.

Acanthylis spinicauda, Boie, Isis, 1826, p. 971; Bp. Consp. p. 64.

Chætura spinicauda, Sclater, Cat. Am. B. p. 283, et P. Z. S. 1863, p. 101.

Nigra; fascia uropygiali alba; subtus albicanti-fuliginosa, pectore indistincte nigro vittato: long. 3·7, alæ 3·9, caudæ 1·6.

Hab. Cayenne.

Mus. P. L. S.

I have little doubt that this bird is the true “*Hirondelle à queue pointue de Cayenne*” of Buffon. It is easily distinguishable from all the others by the white band across the rump. I have two examples, both from Cayenne. Such being the case, it is entitled

* *Cypselus squamatus*, Cassin, *antea* p. 605.

to bear Temminck's appellation *spinicauda*, although only one of the specimens so marked in the Leyden Museum is of this species, and others so marked belong to *Chæt. cinereiventris*, mihi.

11. CHÆTURA RUTILA.

Hirundo rutila, Vieill. Nouv. Dict. xiv. p. 528, et Enc. Méth. p. 534.

Acanthylis rutila, Sclater, P. Z. S. 1855, p. 135.

Chætura rutila, Sclat. et Salv. Ibis, 1860, p. 37, pl. 3. f. 1 (♂), 2 (♀); Sclat. Cat. Am. B. p. 283; et P. Z. S. 1863, p. 101.

Hirundo robini, Less. Tr. d'Orn. i. p. 270.

Chætura brunneitorques, Lafr. Rev. Zool. 1844, p. 81; Bp. Consp. p. 64.

Nigricanti-fuliginosa, subtus dilutior; torque maris undique rubro, fæminæ nullo: long. tota 4·5, alæ 5·0, caudæ 2·0.

Hab. Guatemala (*Salvin*).

Mus. P. L. S.

Said to have been procured by M. Robin in Trinidad, and by Lafresnaye described as from New Granada, but more certainly from Guatemala, where Mr. Salvin obtained his specimens personally.

β. Species Africanæ.

12. CHÆTURA SABINI.

Chætura sabini, Gray, Griff. An. K. ii. p. 70; Hartl. Orn. W. Afr. p. 25; Sclater, P. Z. S. 1863, p. 205.

C. bicolor, Gray, Zool. Misc. p. 7.

Acanthylis bicolor, Strickl. P. Z. S. 1844, p. 99.

Nigra; uropygio, caudæ tectricibus superioribus et inferioribus et ventre cum crisso albis; tectricum caudalium sup. et inf. plumarum rachidibus nigris: long. tota 4·0, alæ 5·0, caudæ 1·5.

Hab. Sierra Leone (*Sabine*); Fernando Po (*Fraser*).

In this smaller species the tail is wholly black; and the whole of the upper and under tail-coverts are pure white, with black shafts to the feathers.

13. CHÆTURA CASSINI.

"*Chætura sabinei*," Cassin, Proc. Acad. Sc. Phil. 1859, p. 33.

C. cassini, Sclater, P. Z. S. 1863, p. 205, pl. xiv. f. 2 (May 26th).

C. hartlaubi, Jard. Edinb. N. Ph. Journ. 1863, p. 147 (July 1st).

Nigra; uropygii fascia angusta et corpore subtus albis; pectore fuliginoso; pectoris et gulæ plumarum rachidibus nigris: long. tota 4·8, alæ 6·3, caudæ 1·2.

Hab. Gaboon (*Du Chaillu*).

In this species the upper tail-coverts are black, crossed by a narrow white bar, which extends through and is partially observable on the rectrices. The size is much larger than that of *Chætura sabini*.

γ. Species Asiaticæ.

14. CHÆTURA SYLVATICA.

Acanthylis sylvatica, Tickell, J. A. S. B. xv. 284; Jerdon, B. Ind. i. p. 170.

Supra nigra æneo nitens; uropygio albo; gula, genis et pect. pallide griseis, lateraliter in nigrum transeuntibus: ventre et crisso pure albis: long. tota 4·25, alæ 5·0, caudæ 1·5 (Jerdon).

Hab. Central India (*Tickell*); Darjeeling (*Tickell*); Nagpore (*Jerdon*).

I have never met with examples of this species. Strange to say, I do not believe any museum in Europe contains it. Dr. Jerdon says, "An allied species is *A. leucopygialis*, Blyth, from Penang, differing from our bird in having the shafts of the tail-feathers much stronger, more resembling those of *A. gigantea*, whilst in our species the tail-feathers more resemble those of *A. caudacuta*. The Penang bird is black beneath, and is thus more normally coloured for a Swift."—*Jerdon, l. c.*

15. CHÆTURA CORACINA.

Cypselus coracinus, Müll. Mus. Lugd.

Acanthylis coracina, Bp. Consp. p. 64 (1858).

A. leucopygialis, Blyth, J. A. S. B. xviii. p. 809 (1858).

Nigra; corpore æneo-nitente; tectricibus caudæ protractis, griseo-lacteis, rachide nigricante: long. tota 4·6, alæ 5·2, caudæ 1·9.

Hab. Borneo and Sumatra (*Mus. Lugd.*); Labuan (*Motley*); Penang, common (*Blyth*).

I have seen examples of this species in the Leyden Museum, and in Mr. Dillwyn's collection from Labuan. Mr. Blyth's species is, no doubt, the same.

Genus 2. CYPSELOIDES.

Cypseloides, Streubel, Isis, 1848, p. 366. Type *C. fumigatus*.

Nephæcetes, Baird, B. N. Am. p. 142 (1860). Type *C. niger*.

I think, although it is not a very easy question to decide, that the name *Cypseloides*, given by Streubel as an alternative to *Hemiprogne*, in his article in the 'Isis,' before referred to, has claims to be used as a generic appellation for *Cypselus fumigatus*, from which *Nephæcetes* (Baird) is hardly sufficiently different for separation. The form in fact is simply *Chætura* without the tail-spines.

a. *Cypseloides*.

1. CYPSELOIDES SENEX.

Cypselus senex, Temm. Pl. Col. 397.

Hemiprogne temminckii, Streubel, Isis, 1848, p. 368.

Fusco-niger, capitis plumis anguste cinereo lineolatis, et rachidibus obsolete nigris; cauda vix rotundata: long. tota 7·0, alæ 7·0, caudæ 2·5, tarsi 0·7.

Hab. S.E. Brazil (*Natt.*).

Mus. P. L. S.

Natterer's examples of this fine Swift (sp. 509 of his series) were obtained at Ypanema in June and November, and at Trisanga in December.

2. CYPSELOIDES FUMIGATUS.

Cypselus fumigatus, *Natt.* MS.

Hemiprocne fumigata, Streubel, *Isis*, 1848, p. 366.

Fumoso-brunneus, unicolor; *cauda quadrata*: *long. tota* 5·0, *alæ* 5·6, *caudæ* 2·0, *tarsi* 0·6.

Hab. S.E. Brazil (*Natt.*).

Mus. P. L. S.

Of this species, numbered 424 in Natterer's collection, specimens were obtained by that excellent naturalist at Ypanema in September, November, and December, at Curytiba in November, and in Ytararé in March.

b. *Nephæcetes*.

3. CYPSELOIDES NIGER.

Hirundo nigra, Gm. S. N. i. p. 1025.

Cypselus niger, Gosse, B. Jam. p. 63; ejusd. Ill. pl. 10; Gundl. & Lawr. Ann. L. N. Y. vi. 268.

Niger unicolor, gutture dilutior; frontis plumis cinerascens marginatis; *cauda paulum furcata*: *long. tota* 5·5, *alæ* 6·2, *caudæ rectr. ext.* 2·4, *med.* 2·1.

Hab. Jamaica (Gosse); Cuba (Gundlach).

Mus. P. L. S.

4. CYPSELOIDES BOREALIS.

Cypselus borealis, Kennerly, Pr. Acad. Phil. 1857, p. 202.

Nephæcetes niger, Baird, B. N. Am. p. 142.

Niger unicolor, fronte canescente; *cauda quadrata*: *long. tota* 5·8, *alæ* 6·5, *caudæ* 2·1, *tarsi* 0·5.

Hab. Puget Sound, British Columbia.

On the whole I am disposed to think this species will probably turn out different from the West-Indian *C. niger*, though my materials are not at present sufficient to give accurate diagnoses of the two.

Genus 3. COLLOCALIA.

Collocalia, G. R. Gray, List of Gen. 1840, p. 8.

Salangana, Streubel, *Isis*, 1848, p. 368.

I have paid no special attention to this group. Mr. Wallace, who has lately contributed an interesting article to these 'Proceedings'* on the subject, recognizes six species, namely:—

1. *C. esculenta*, from Celebes, Timor, Moluccas, and Aru Islands.

* See P. Z. S. 1863, p. 382.

2. *C. leucopygia*, from New Caledonia.
3. *C. linchi*, from Java, Malacca, and the Nicobars.
4. *C. spodiopygia*, from the Samoan and Fiji Islands.
5. *C. troglodytes*, probably from the Philippines.
6. *C. fuciphaga*, from "Bourbon and Mauritius (var. *francica*, Gm.); India and Ceylon; the whole of the Malay Islands; Louisiade Archipelago; New Caledonia; Tahiti (var. *leucophæa*, Peale; *cinerea*, Gm.); Marianne Islands."

Mr. Wallace states that the British Museum contains a seventh species, from the New Hebrides, as yet undescribed.

Genus 4. DENDROCHELIDON.

Macropteryx, Sw. Zool. Ill. (1832).

Pallestre, Lesson, Compl. Buff. viii. p. 490 (1837).

Dendrochelidon, Boie, Isis, 1844, p. 165.

Chelidonia, Streubel, Isis, 1848, p. 370.

This is likewise a purely Palæogean form to the species of which I have paid little attention. Those I am acquainted with are the following:—

1. DENDROCHELIDON MYSTACEA.

Cypselus mystaceus, Less. Ois. t. 22.

Macropteryx mystaceus, Sw.

Dendrochelidon mystaceus, Gould, B. Asia, pt. xi. pl. 5.

Mr. Gould states that the habitat of this bird is the Aru Islands and New Guinea; but the truth is, its range is more extensive. The Leyden Museum contains specimens from Amboina, Cerain, Bouru, Morotai, Guebé, Batchian, Halmaheira, and Waigiou.

2. DENDROCHELIDON WALLACII.

Dendrochelidon wallacei, Gould, P. Z. S. 1859, p. 100, et B. Asia, pt. xi. pl. 4.

Hab. Celebes and Sula Islands (*Mus. Lugd.*).

3. DENDROCHELIDON KLECHO.

Hirundo klecho, Horsf.

Dendrochelidon klecho, Gould, B. Asia, pt. xi. pl. 3.

Hab. Java, Sumatra, and Malay peninsula; Banca (*Mus. Lugd.*).

The very remarkable mode of nidification of this Swift is described by Dr. Bernstein in the 'Journal für Ornithologie' for 1859 (p. 183). Dr. Bernstein says that the nest resembles in form and materials that of *Collocalia*, but is still smaller and flatter! It is a semicircular structure, and is affixed to a small naked horizontal branch high up in a tree, the branch forming the flat side of the nest. The walls, scarcely thicker than parchment, are made of feathers, tree-mosses, and bits of bark, cemented together by the viscous saliva of the bird. The nest, which contains a single, perfectly oval, white egg, is so small that the bird (as repeatedly observed by Dr. Bernstein) sits upon the branch, and covers it with only the end of her belly.

4. DENDROCHELIDON CORONATA.

Hirundo coronata, Tickell.*Macropteryx longipennis*, Jerdon.*Dendrochelidon schisticolor*, Bp. Consp. p. 66.*D. coronata*, Gould, B. Asia, pt. xi. pl. 2.*Hab.* Continental India and Ceylon.

5. DENDROCHELIDON COMATA.

Cypselus comatus, Temm.*Dendrochelidon comata*, Gould, B. Asia, pt. xi. pl. 6.*Hab.* Borneo, Sumatra, and Philippines (*Mus. Lugd.*); Siam (*Finlayson*).

November 14, 1865.

John Gould, Esq., F.R.S., V.P., in the Chair.

Mr. S. Stevens exhibited a nearly perfect egg of a *Dinornis*, supposed to be that of *D. ingens*, Owen, which had been placed in his hands for sale, and read the following extract from a newspaper published at Wellington, New Zealand, on the subject:—

“There is at the present time being exhibited at Messrs. Bethune and Hunter’s stores, for the benefit of the curious, an object of no less interest than the egg of a Moa. It appears, from what we learn from Captain Davidson, of the schooner ‘Ruby,’ which trades between this port and the Kai Koras, that a man in Mr. Fyffe’s employment at the latter place was digging the foundation of a house, when on the side of a small mound he suddenly came upon the egg in question, and the skeleton of a man, supposed of course to be a Maori. The body had evidently been buried in a sitting posture, and the egg must have been placed in the hands, as when found the arms were extended in such a manner as to bring it immediately opposite the mouth of the deceased. This, it is assumed, was in accordance with the Maori custom, and was done for the purpose of giving the individual who was buried an opportunity of sustaining himself if he thought proper, or if, in the course of things, he required sustenance. Between the legs of the skeleton were found numerous tools, cut from greenstone, including a spear, axe, and several implements, which would lead to the belief that the man to whom the bones belonged must have been, in some way or other, connected with the wood trade—that is to say, if carpenters, cabinetmakers, &c., flourished in his time. All the bones were in excellent preservation, one arm and hand being entirely without blemish. The skull bore evidence of its proprietor having, at some time or the other, received some hard knocks, probably in the battle-field while taking his part in some of those terrific en-